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EPA comments Draft Ecological Risk Assessment - Step 7.txt
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Sent: Tuesday, June 12, 2007 12:20 PM
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Subject: Draft Ecological Risk Assessment - Step 7, Site 1 Surface Water
andSediment - North Branch Potomac River

EPA has completed it's review of the subject document and submits the following comments.

We appreciate the opportunity to review and comment.

Feel free to contact me if you have any questions.

Sediment Toxicity Bioassay

The document indicates that the results of the bioassay are ambiguous. The BTAG has reviewed the data and concludes that toxicity is clearly evident in the downgradient sediment samples. The data demonstrate that growth is more sensitive than reproduction, but toxicity is consistent (i.e., the samples with reduced reproduction also had suppressed growth).

The correlation analysis indicates that total PAHs have a consistent negative effect on amphipod growth and reproduction (Table 6-9). Correlation data for individual PAHs are not provided. The toxicity results are then used to derive no effects concentrations (NOECs) for individual PAHs (Table 6-10). The BTAG requests that correlation parameters for individual PAHs be included. These parameters would indicate if certain PAHs are driving the toxic effects which may explain some of the variability between samples. Moreover, the statistical analyses used to determine all of the NOEC values and identify outliers should be provided to BTAG for review and included as an appendix. EPA cannot conclude that the NOECs presented are valid without reviewing their derivation.

The comparison of the NOEC values to sediment concentrations considers the data arithmetically (Table 6-11). While this approach is suitable for a lake bottom, the comparison for the river needs to be by transect. This approach will identify any locations within the river that consistently exceed risk values rather than merging the data across the entire segment.

Benthic Community Surveys

The BTAG has reviewed the data and does not agree with several of the conclusions presented in the report. The changes in the metrics in 2002 during low flow are more likely to be attributable to increased contaminant exposure concentrations from reduced water volume. The lack of changes at Biota 1 and Biota 6 support this interpretation as the effects of low flow alone would have been consistent across the entire segment of river. Effects restricted to the contaminated river segment must be assumed to be due to toxicity. Although the flow conditions for 2006 were not discussed, it is possible that exposure concentrations were lower due to an elevated volume of water. Data on flow from the nearest gauging station during the months preceding the survey should be presented in a table. During future low precipitation years, effects of contaminants could again be seen in the benthic macroinvertebrate community.

While Cricotopus is tolerant of conventional pollutants (e.g., ammonia, phosphates), this metric rating was not based on contaminants at this site. Therefore, its presence or absence can not be used to resolve the cause of effects at this site.

Moreover, the metrics that have driven the significant differences in total scores at each previous monitoring event (i.e., EPT/Chironomidae, EPT Abundance) were still suppressed in 2006. This effect is particularly evident at Biota 4B – the same location (SD09) with suppressed growth and reproduction in the bioassay. Unfortunately, no biota sampling was conducted at transect 7, the other sediment location that demonstrated both growth and reproductive effects in the bioassay.

Recommendation

Contaminants in the sediments are toxic in laboratory assays. Waste is still present in the floodplain and migration of contaminants into the river is still possible. The risk to the foundation of the aquatic food chain is still elevated, particularly in years with below normal precipitation. EPA recommends that continued monitoring of contaminants in the river sediments is warranted until the floodplain soils have been remediated. Once the source areas are remediated, the need for removal of contaminated sediments in river should be reassessed based on sediment data collected in the interim.

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